



DEPARTMENT OF CONSERVATION

Managing California's Working Lands

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ONSET OF RAINY SEASON INCREASES LANDSLIDE RISK

SACRAMENTO – Although landslides can occur at any time, the rainy season increases their likelihood, especially in areas impacted by wildfires or that have had previous slides. The California Geological Survey (CGS) today reminded Californians to be aware of the signs of an impending landslide or mudslide.

“Californians are well aware that they’re in earthquake country, but landslides are a more frequent occurrence and can be just as devastating in localized areas,” said Dr. John Parrish, the State Geologist of California and head of CGS. “Hundreds of people worldwide are killed, injured or displaced each year due to landslides and debris flows.”

CGS, part of the California Department of Conservation, also announced the release of three new landslide inventory maps, which are meant to help officials assess local risks and protect public safety. The maps cover portions of Dublin, Pleasanton and Livermore in Alameda County, and the southern portion of San Ramon in Contra Costa County.

A landslide is any mass of earth and rock that moves downhill by sliding, flowing or falling. Large, slow-moving landslides composed of bedrock can cause extensive property damage, while debris flows, commonly called mudslides, move very quickly.

“If you know nothing else about landslides, remember this: When it’s raining hard, the single most important action you can take is to avoid sleeping in lower-floor bedrooms on the sides of houses that face hazardous slopes,” said geologist Charles Real, who heads CGS’ landslide mapping activities under California’s Seismic Hazards Mapping Act.

“If you live on, below or on top of a slope -- especially in areas where plant life has been thinned by wildfires in the past couple of years -- be alert when it’s raining,” he continued. “Check for new cracks in soil, bare hillsides or material moving downhill. Any unusual rumbling sounds may indicate that soil is giving way.”

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PREPARE FOR LANDSLIDES 2-2-2

Fire damage, Real noted, causes soil to become less absorbent because ash clogs pores in the soil and a waxy residue is given off by burning plants, laying down a water-resistant veneer. As a result, rainwater runs off faster instead of sinking into the ground, increasing erosion.

Areas that have experienced landslides in the past are more susceptible to repeat occurrences and regions that received significant amounts of rain last year have an increased potential for a landslide this winter. Exceptionally heavy rain – three or more inches a day or a quarter-inch an hour – also increases the likelihood of a landslide because soil becomes waterlogged.

When California rainfall exceeds normal levels by 150 percent or more, landslides cause, on average, property damage in excess of \$100 million and as many as five deaths each year. More than 100 Californians have been killed by debris flows during the past 25 years. Most of those deaths occurred when debris flows buried people sleeping in lower-floor bedrooms adjacent to slopes that gave way.

“Earthquakes don’t give us any warning, but landslides do,” Parrish said. “If you know the warning signs and take prudent steps in advance, you can save lives and minimize property damage.”

Meanwhile, the newly released inventory maps indicate whether known landslides are considered active or dormant, the direction of movement, and the type of movement involved (some landslides are more destructive than others). CGS produces the maps by incorporating previous mapping work with a detailed review of aerial photography and geologic fieldwork. The maps released today show 495 landslides in the Altamont quadrangle, 287 in the Dublin and 111 in the Livermore. The maps can be viewed at http://redirect.conservation.ca.gov/CGS/information/publications/lslim_norcal.htm.

“Communities need to know where the landslides are, how they move, and how recently they’ve moved in making development plans and land-use decisions. That’s what these maps show,” Real said. “Sometimes the potential for landslides can be mitigated, but sometimes it’s simply best to avoid building on or near them.”

CGS has created several varieties of landslide maps over the years, but the landslide inventory series is the most detailed. The new landslide inventory maps are non-regulatory; however, they provide important information to geotechnical professionals and local government personnel, as well as property owners and developers dealing with properties in Zones of Required Investigations for earthquake-induced landslides, which are established by CGS’ regulatory Seismic Hazard Zone maps.

More information about landslides – including tips for residents and mitigation steps – can be found at http://www.consrv.ca.gov/CGS/geologic_hazards/landslides/index.htm.

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